

AMENDMENTS TO THE SPECIFICATION:

At page 1, paragraph 2, starting on line 15, please change to read as follows:

Recently, the number of users of mobile communication equipment ~~is~~ ~~are~~ increasing rapidly, and hence there has been greater demand for more effective utilization of ~~[[a]]~~ limited width frequency bands. For this reason, a band-pass filter (in particular, a filter utilized on the side of a base station under a microwave band environment) is required to have a steep cutoff characteristic and a low power loss performance in the pass-band. To implement a filter having a steep cutoff characteristic under a microwave band environment, the number of filter stages shall be increased. However, if the filter is composed of an ordinary conductive metal, the power loss in the pass band becomes excessively large.

At page 2, paragraph 2, starting on line 7, please change to read as follows:

FIG. 15 is a plan view schematically showing a superconductive microstrip filter. As shown in FIG. 15, a superconductive microstrip filter 50 has a dielectric substrate 53 (made of MgO or the like) having a desired line pattern of a superconductive film (superconductive signal line portion) 51a, 51b and 52 formed by means of lithograph or the like, an input connector 54a to which a signal input coaxial cable can be connected, and an output connector 54b to which a signal output coaxial cable can be connected. FIG. 16 is a cross sectional view taken along the line A-A on the superconductive film 52 (51a and 51b) shown in FIG. 15.

At page 2, paragraph 3, starting on line 18, please change to read as follows:

The above-described input connector 54a is bonded together with the superconductive film 51a at a center conductor 55 thereof by using a solder or the like so that when the input

connector 54a is connected with the coaxial cable 65a, an input microwave can be transmitted through the coaxial cable 65a and led into the superconductive film 51a. Similarly, the output connector 54b is bonded together with the superconductive film 51b at a 55 center conductor 55 thereof by using a solder or the like so that a microwave outputted through the superconductive film 51b can be inputted into the coaxial cable 65b (See Fig. 15). In FIG. 15 reference numerals 55a and 55b designate these bonding portions.

At page 3, paragraph 1, starting on line 2, please change to read as follows:

Each of the superconductive films 52 (See Fig. 15) is optimally designed in its length and the distance from it to the neighboring superconductive film 52 (forming a coupling capacity together with that superconductive film) so that the superconductive film serves as a resonator which resonates a particular frequency (or wavelength) component in the frequency band of the input microwave components introduced into the above-described superconductive film 51a. In this way, only the particular frequency (or wavelength) component in the frequency band of the input microwave components introduced into the above-described superconductive film 51a is resonated in each of the superconductive films 52 and propagated to the adjacent superconductive film 52. Finally, the particular frequency component in the frequency band is extracted from the superconductive film 51b and outputted through the output connector 54b to the coaxial cable 65b.

At page 4, paragraph 1, starting on line 1, please change to read as follows:

When the above-described superconductive micro-strip filter 50 (hereinafter sometimes simply denoted as “superconductive filter 50”) is operated, the filter is housed within a package

61 made of an ordinary conductivity metal having a high thermal conductivity and a low thermal expansion (shrinkage) ratio such as copper, INVER ~~Inver~~ or the like, as schematically shown in FIG. 17. Then, the package 61 is disposed on a cold head (cooling medium) 63 provided in a vacuum heat insulating vessel 62 (reference numeral 64 represents a vacuum space). The cold head 63 is connected to a refrigerator not shown and the superconductive films 51a, 51b and 52 are cooled (to about 70K (Kelvin)) by the refrigerator, whereby the superconductive films are placed in a superconductive state.

At page 8, before paragraph 2, please change the subtitle to read as follows:

SUMMARY DISCLOSURE OF THE INVENTION

At page 9, paragraph 2, starting on line 16, please change to read as follows:

In this case, the columnar resonating member may have any one of a circular cross-section, an elliptical cross-section and ~~a~~ ~~or~~ polygonal cross-section. Further, each of the filter housing and the columnar resonating member may be made of ordinary conductive material, the inner wall of the filter housing and the surface of the columnar resonating member may be applied with metal plating, and a superconductive film made of superconductive material may be formed on the surface of the metal plating.

At page 13, paragraph 3, starting on line 23, please change to read as follows:

In this case, the columnar resonating member may have any one ~~of~~ a circular cross-section, an elliptical cross-section and ~~or~~ a polygonal cross-section. Further, each of the filter housing and the columnar resonating member may be made of ordinary conductive material, the

inner wall of the filter housing and the surface of the columnar resonating member may have metal plating applied, and a superconductive film made of superconductive material may be formed on the surface of the metal plating.

At page 21, paragraph 2, starting on line 9, please change to read as follows:

Meanwhile, the above-introduced ordinary conductive material ~~maybe~~ include either copper ~~type~~ material or nickel ~~type~~ material, for example. These materials have very high adaptability for realizing the invention. Further, the above metal plating may ~~be of any~~ include one of silver ~~type~~ material, gold ~~type~~ material or nickel ~~type~~ material, for example. These materials have high adaptability for realizing the invention, and these materials make it easy to form the superconductive film on the surface thereof. Also, the superconductive material may be ~~any~~ one of YBCO, NBCO, BSCCO, BSCCO, BPSCCO, HBCCO and TBCCO, for example. These materials have high adaptability for realizing the invention.

At page 25, paragraph 3, starting on line 9, please change to read as follows:

FIG. 4 is a diagram showing a cross section taken along the line C-C of the ~~connector~~ filter assembly shown in FIG. 2;

At page 26, paragraph 6, starting on line 16, please change to read as follows:

FIG. 15 is a plan view schematically showing a conventional superconductive microstrip filter assembly;

FIG. 16 is a diagram showing a cross section taken along line A-A of a conventional superconductive film shown in FIG. 15; and

FIG. 17 is a side view schematically showing a conventional superconductive filter module having a superconductive micro-strip filter assembly in which only a vacuum heat insulating vessel is shown in a cross-sectional manner.

At page 26, before last paragraph, starting on line 25, please change the subtitle to read as follows:

DETAILED DESCRIPTION OF BEST MODE FOR CARRYING OUT THE PRESENT INVENTION

At page 27, paragraph 2, starting on line 14, please change to read as follows:

The filter housing 21 is provided with a proper number of metal rods 23 (in the example shown in FIGS. 1 and 2, the number is five) attached to an inner wall 22 at one end 23a thereof (see FIG. 2), frequency adjusting screws 24 attached to respective aperture portions 24a provided on a side portion 21e of the housing so that the frequency adjusting screws are brought into opposition to the metal rods 23, respectively, a pair of signal coupling units 25a and 25b attached to the respective connectors 27a and 27b so that the signal coupling units are brought into opposition to the metal rods 23 with a space interposed therebetween, coupling capacity adjusting screws 26 provided between each of the metal rods 23 through respective hole aperture portions 26a provided in a side portion 21f of the housing opposing to the side portion 21e (See Fig. 1). The filter assembly having the above construction is ordinarily referred to as a coaxial type (semi-coaxial type) filter.

At page 29, last paragraph, starting on line 17, please change to read as follows:

As described above, if the metal rod 23 functioning as a resonator has the superconductive film 23b formed on the surface thereof, the surface resistance thereof comes to have a value of one tenth to one thousandth the surface resistance of an ordinary conductive material or smaller, even if the resonator is placed under a high frequency band environment such as that of the microwave band. Therefore, if the filter stage number (i.e., the number of metal rods) is increased up to five stages or more in order to obtain a steep cutoff ~~cutting~~ characteristic, a filtering characteristic having a very low energy loss performance can be obtained in the pass-band.

At page 30, paragraph 3, starting on line 18, please change to read as follows:

The coupling coefficient adjusting screw (bandwidth adjusting member) 26 is a member for adjusting the space amount formed between each of the metal rods 23 so that a coupling capacity is created between each of the metal rods 23. In this way, the band width (passing band) of the band-pass filter 1 (filtering frequency) can be adjusted. ~~Due~~ ~~Owing~~ to the adjusting screws 24 and 26, the superconductive filter assembly 1 can be subjected to a desired filtering frequency adjustment with ease.

At page 31, paragraph 2, starting on line 9, please change to read as follows:

As described above relative to Fig. 4, according to the arrangement of the superconductive filter 1, since the internal components of the housing 21 have the metal (silver) plating 21A, 23A, 24A and 26A applied, even if the filter assembly is placed under a normal temperature, the center frequency of the filtering frequency, the width of the pass-band or the like can be adjusted by using the adjusting screws 24 and 26. Therefore, the filtering frequency can be adjusted in a room temperature environment in advance with an estimated deviation,

which will be caused when the superconductive filter assembly 1 is placed and operated under a low temperature state (superconductive state).

At page 32, last paragraph, starting on line 19, please change to read as follows:

As shown in FIG. 3, the connector 27a (27b) is engaged at its own external thread portion 27e with the housing 21. Thus, the connector can be properly adjusted in the distance (coupling coefficient) with respect to the metal rods 23 (not shown) opposite the signal coupling unit 25a (25b) (i.e., the connector is movable). However, the connector is fastened by a nut 27f. In FIG. 3, reference numeral 27c ~~27d~~ represents an insulating member such as a dielectric material coating the center conductor ~~27e~~ 27d of the connector 27a (27b).

At page 40, last paragraph, starting on line 21, please change to read as follows:

With this arrangement, the electric characteristic of the coaxial cables 5a and 5b is ensured. In addition, the silver plating portion 104 is a very thin and hence it has a very small cross-sectional area as compared with the thickness of the external conductor 103. Therefore, the silver plating portion 104 serves as a large heat resistance (heat insulating portion). Accordingly, heat can be effectively suppressed from being conducted (introduced) from the outside of the vacuum heat insulating vessel 2 (i.e., external cables 5c and 5d). In FIG. 7, reference numeral 101 represents the center conductor and reference number, 102 represents the dielectric body (insulating member) coating the center conductor 101.

At page 45, last paragraph, starting on line 26, please change to read as follows:

According to the arrangement of the coaxial cable 5a (5b) of the third modification, electric characteristics can be satisfactorily maintained similarly to the case of the coaxial cable

5a (5b) of the second modification, without using a separate part such as a capacitor 114.

Further, the exposed peripheral portion 124 can suppress heat conduction to the superconductive filter assembly 1. In this case, in particular, since the external conductor 123 is completely separated (cut) at the exposed peripheral portion 124, the heat insulating performance can be further increased ~~by more~~.

At page 46, last paragraph, starting on line 20, please change to read as follows:

FIG. 10 is a cross-sectional view schematically showing a third modification of the coaxial cable 5a (5b). As shown in FIG. 10, the coaxial cable 5a (5b) has a structure whereby a metal plating layer (e.g., copper plating) 133 ~~132~~ having a thickness of more than surface skin thickness (e.g., 5 μ m) is provided on the surface of a dielectric body (insulating member) 132 coating a center conductor 131 so that the metal plating extends along the whole length of the cable. Thus, the metal plating serves as an external conductor. Then, the cable is reinforced with a plastic layer 134 provided on the outer periphery of the external conductor.